

AUTHORS: Borovik, Ye. S., Batrakov, B. P. SOV/57-28-9-17/33

TITLE: Breakdown Investigations in Vacuum (Issledovaniye proboya v vakuume)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Vol 28, Nr 9, pp. 1971 - 1980 (USSR)

ABSTRACT: The investigation of two problems is the subject of this paper: The magnitude of surface strength of isolators in vacuo and the breakdown between metallic electrodes in vacuo. As the work reported in this paper was concluded in 1954, no use could be made of the information found in references 4 and 5. The vacuum plant was equipped with a hydrogen condensation pump, which operates on the following principle: The gases are liquefied at the surface of liquid hydrogen and then are drawn off. This pump was described in reference 6. This is a description of the plant used in the breakdown experiments. The following experimental evidence is presented: 1) When the vacuum surface strength of insulators is investigated, it appears that the breakdown proceeds along narrow channels on the surface of the insulator. Ribbed

Card 1/3

Breakdown Investigations in Vacuum

SOV/57-28-9-17/33

insulators do not exhibit a greater strength. Plexiglass and vinylplast were found to have the highest strength among the insulators investigated. 2) As regards the second problem it was found that long before the actual breakdown between metallic electrodes in vacuum a current between the electrodes is generated. It is mainly an electron current which causes the destruction of the anode. 3) The electric strength is not increased by a better de-gassing of the electrodes. 4) Also, varying the pressure in the range 10^{-6} to 10^{-8} mm. Hg. has no effect either

on the breakdown along insulators or on the breakdown between metallic electrodes. There are 7 figures, 4 tables, and 10 references, 5 of which are Soviet.

ASSOCIATION: Khar'kovskiy fiziko-tekhnicheskii institut AN USSR (Khar'kov Physical-Technical Institute, AS UkrSSR)

SUBMITTED: November 28, 1957
Card 2/3

L 17327-63

BDS

ACCESSION NR: AP3004901

S/0120/63/000/004/0112/0115

AUTHOR: Batrakov, B. P.; Kobzev, P. M.

51
50

TITLE: Omegatron for ultrahigh-vacuum measurements

SOURCE: Pribery⁴i tekhnika eksperimenta, no. 4, 1963, 112-115

TOPIC TAGS: omegatron, ultrahigh vacuum

ABSTRACT: The principal shortcoming of existing omegatron designs has been the fact that exhaust slits between electrodes are too narrow. A new design is described with perforated electrodes that make the exhaust rate higher by one order. The total area of perforations in this "transparent" design is about 1,000 mm². Experimental verification has shown (mass-spectrogram supplied) that the transparent omegatron has a substantially lower background noise. Ion current vs. catching voltage, and ion current vs. electron current characteristics are given, as well as data on the residual atmosphere of the hydrogen

Card 1/2

L 17327-63

ACCESSION NR: AP3004901

condensation-type vacuum pump. Orig. art. has: 5 figures.

ASSOCIATION: Fiziko-tehnicheskly institut AN UkrSSR (Physico-Technical
Institute, AN UkrSSR)

SUBMITTED: 12Sep62

DATE ACQ: 28Aug63

ENCL: 00

SUB CODE: PH, GE

NO REF SOV: 001

OTHER: 001

Card 2/2

BOROVIK, Ye.S.; BATRAKOV, B.P.; KOBZEV, P.M.

Helium liquefier with flow-through liquid heat exchangers.

Prib. i tekhn. eksp. 9 no.4:197-200 J1-Ag '64. (MIRA 17:12)

NURMATOV, Kadyr Nurmatovich; BATRAKOV, B.S., kandidat ekonomicheskikh nauk, spets. redaktor; **SOLYANOVA, N.M.,** redaktor; **TINKHASOV, Ya.B.,** tekhnicheskii redaktor

[Experience in organizing production and the economy of the Sverdlov Collective Farm; Verkhne Chirchik District, Tashkent Province] Opyt organizatsii proizvodstva i ekonomika kolkhosa imeni Sverdlova; Verkhne-Chirchikskii raion, Tashkentskoi oblasti. Tashkent, Gos. izd-vo Uzbekskoi SSR, 1954. 151 p. (MLRA 9:10)
(Uzbekistan--Collective farms)

BATRAKOV, D.S., inzh.

Fastening of 6-10 kv. dischargers on the same hook with a
power transmission wire. Energetik 10 no.9:25-26 S '62.
(MIRA 17:1)

ZIL'BERMAN, M.N.; -BATRAKOV, E.D.

Combined method for potentiated local anesthesia in urology.
Urologia 25 no. 5:25-29 S-O '60. (MIRA 14:1)
(UROLOGY) (LOCAL ANESTHESIA) (ARTIFICIAL HIBERNATION)

24.5600

37862
S/056/62/042/005/005/050
B125/B108

AUTHORS: Batrakov, G. F., Mis'kevich, O. P., Troynar, Ye.
TITLE: Measurement of surface tension between the superconducting and the normal phase
PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 5, 1962, 1171 - 1172

TEXT: The surface tension was determined in tin at the interface between the superconducting and the normal phase. For this purpose, the period of the regular structure of the intermediate state in a transverse magnetic field at various temperatures was measured. According to L. D. Landau (ZhETF, 7, 371, 1937), normal and superconducting phases alternate in the said structure. The magnetic field structure was measured with ferro-magnetic powder and with bismuth micrometric instruments on the surface of three tin single crystals and inside a 100 μ wide slit. In all experiments, the intermediate state was produced by reducing the temperature and subsequently increasing the magnetic field to 0.9 H_{crit} . The experimental results became clearer and more regular when a slight current

Card 1/2

BATRAKOV, G.F.; MIS'KEVICH, O.R.; TROYNAR, Ye.

Measurement of the surface tension between superconducting
and normal phases. Zhur. eksp. i teor. fiz. 42 no.5:1171-1172
My '62. (MIRA 15:9)

1. Moskovskiy gosudarstvennyy universitet.
(Surface tension) (Superconductivity)

БАТКАНОЛ 16

PLANE 1 BOOK EXPLOITATION SOY/5078

Академія наук УРСР, Київ. Інститут електрозварювання
Введення нових способів зварки в промисловість; збірник статей.
1979. 3. (Introduction of New Welding Methods in Industry; Col-
lection of Articles. v. 3) Київ, Дос. ізд-во техн. літ-ри
УРСР, 1980. 207 с. 5,000 copies printed.

Sponsoring Agency: Ordena Trudovogo Krasnogo Znasheni Institut
elektrozvarki imeni akademika Ye. O. Patona Akademii nauk
Ukrainskoy SSR.

Ed.: M. Pisarenko; Tech. Ed.: S. Matusevich.

PURPOSE: This collection of articles is intended for personnel in
the welding industry.

COVERAGE: The articles deal with the combined experiences of the
Institut elektrozvarki imeni Ye. O. Patona (Electric Welding
Institute imeni Ye. O. Paton) and several industrial enterprises
in solving scientific and engineering problems in welding
technology.

Problems in the application of new methods of me-
chanical welding and electroslag welding in industry are discussed.
This is the third collection of articles published under the same
title. The previous ones were written by S. Ye. Paton, Academician of
the Academy of Sciences Ukrainian SSR and Lenin Prize winner.
There are no references.

TABLE OF CONTENTS:

Yashkevich, R. I. [Candidate of Technical Sciences]. Electric welding Institute imeni Ye. O. Paton]. 2. O. Knyazhinskiy. [Candidate of Technical Sciences. Ukrainian Scientific Research Institute for the Pipe (Ukrainian Scientific Research Institute for the Pipe Industry)], and S. A. Krut'ko [Chief Engineer, Chelya- binskiy truboprovodny zavod (Chelyabinsk Pipe Mill)]. New Process for Producing Large-Diameter Straight-Weld Pipes for Oil and Gas Lines	140
Zvonkov, M. I. [Engineer], D. M. Babkin [Candidate of Technical Sciences], I. M. Savich [Engineer, Electric Welding Institute imeni Ye. O. Paton], V. A. Verbenko [Engineer of the Trust "Prodmontazh" (Trust for Installa- tion of Food Industry Establishments)], and I. M. Migorod- skyi [Formerly Chief Engineer of the "Sol'aherskiy Plant". Experience in the Successful Welding of Aluminum and Its Alloys]	154
Logachev, O. O. [Engineer], I. M. Kolesnikov [Engineer]. Institute imeni Ye. O. Paton]. I. G. Babitskiy [Chief Mechanic, Belgorodskiy tsementnyy zavod (Belgorod Cement Plant)], M. P. Isakov [Chief of the Welding Engineering Department, Krasnoyarskiy zavod "Sibtrazhmas" (Krasnoyarsk Libertan Heavy Machinery Plant)], and V. G. Kollipalov [Deputy Chief Process Engineer, Sverdlovskiy zavod "Yuzhnyy Sverdlovskiy zavod (Sverdlovsk Heavy Machinery Plant)]. Large Type 35L Steel Tie-Rings for Cement Kilns	176
Labedev, B. P. [Candidate of Technical Sciences, Electric Welding Institute imeni Ye. O. Paton], A. I. Aleksandr [Trust "Metal'konstruktsiya (Ural Fabricated-Steel Trust)], and S. Yu. Babitskiy [Trust Dneprostal'. Konstruktsiya (Dneprostal' Fabricated-Steel Trust)]. Experience in the Mechanization of Welding Operations in the Rec- tification of Metallic Structures for a Blast-Furnace Plant	194

BERNSHTEYN, L.A.; GORNYI, A.Kh.; POL'SKIY, L.L.; BATRAKOV, I.G.; KOPELETS, V.S.

Using hydro-cyclones for grading cement slurries of plastic raw materials. TSement 28 no.6:12-15 N-D '62. (MIRA 15:12)

1. Yuzhgiprotsement i Belgorodskiy tsementnyy zavod.
(Centrifuges) (Cement)

BATRAKOV, M.

BATRAKOV, M. Soviet mining combines. p. 361

Vol. 5, no. 11, Nov. 1955

UHLI

TECHNOLOGY

Praha Czechoslovakia

So: East European Accessions, Vol. 5, No. 5, May 1956

STUDY, A.

~~XXXXXX~~

"Salting cucumbers and tomatoes in pumpkins." Sad i'og. no. 8, 1952.

1. BATRAKOV, M. A.
2. USSR (600)
4. Fruit Culture
7. Laying out orchards on consolidated collective farms. Sad i of. no. 11 1952

Monthly List of Russina Accessions, Library of Congress, March, 1953, Unclassified

37160

Z/013/62/000/004/006/006

D006/D102

15.2420

AUTHOR: Batrakov, N. A.

TITLE: A study of molybdates and tungstates of bivalent cations produced by ceramic technology

PERIODICAL: Sklář a keramik, no. 4, 1962, 147-149

TEXT: The purpose of the study was to determine the formation mechanisms of molybdates and tungstates of bivalent cations of the RMO_4 and RWO_4 types during their production by conventional sintering method; the processes taking place during mixing and firing; and the effects of various additions introduced to facilitate the sintering process and/or modify the electric properties. Differential thermal analysis and X-ray analysis were employed in determining the course of reactions in the solid phase. Results: (1) Tungstates and molybdates of bivalent cations are stable enough to be produced by ceramic technology. (2) Most intensive sintering was found in the temperature range of 900 - 1,100°C, the sintering temperatures of tungstates being always higher than those of molybdates. (3) Maximum electrical resistivity was found with both types at 80-100°C due to water adsorption. (4) Addition of monovalent or trivalent cations produces no

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A study of molybdates and ...

Z/013/62/000/004/006/006
D006/D102

significant reduction of sintering temperatures. (5) Lanthanum-oxide addition to tungstates of the CaWO_4 type reduces the luminescence and increases the resistivity. (6) Chromic-oxide addition (1-5%) to tungstates of the $(\text{Fe,Mn})\text{WO}_4$ type reduces the resistivity by two orders of magnitude only. (7) Firing of tungstates and molybdates in a hydrogen reduction atmosphere does not reduce the resistivity below $1 \cdot 10^6$ ohm/cm. (8) In the $\text{ZnO} - \text{ZnWO}_4$ system, small additions of tungsten trioxide to zinc oxide increase the conductivity. At higher additions, full dissolubility is achieved and conductivity is equal to the mixture of the two solid phases. There are 2 figures and 2 tables. X

ASSOCIATION: Ural Polytechnical Institute, Department of Glass and Ceramics,
Sverdlovsk

Card 2/2

BARTUSKA, Miloslav; BATRAKOV, Nikolaĭ A.

Examination of substances in the system $ZnO_2 \rightarrow ZrO_2$. Silikaty 6
no.4:341-351 '62.

1. Vysoka skola chemicko-technologicka, Katedra technologie
silikatu, Praha.

L 13570-63

EMP(Q)/ENT(M)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3000182

8/0080/63/036/004/0724/0730

AUTHOR: Bartushka, Miloslav; Batrakov, N. A.

TITLE: A study of the properties of sinters in the zinc-oxide--zirconium-dioxide system

SOURCE: Zhurnal prikladnoy khimii, v. 36, no. 4, 1963, 724-730

TOPIC TAGS: zinc oxide, zirconium oxide, resistivity, coefficient of thermal expansion, thermistors, temperature coefficient, eutectic, ZnO--ZrO sub 2 system

ABSTRACT: In the ZnO--ZrO sub 2 system, no stable compounds are formed up to 1700 degrees; reciprocal diffusion of the oxides does occur. The effect of Zr sup 4+ ions on the ZnO lattice is manifested in increased electric conductivity. Materials containing 3-20% ZrO sub 2 are completely sintered at 1400 degrees. Because of their low resistivity (40-1000 ohm x cm at 25 degrees), significant temperature coefficient of resistivity, and small coefficient of thermal expansion, the materials can be used to manufacture thermistors by the methods of ordinary ceramic technology. The fusion curve for the ZnO--ZrO sub 2 system is given; a eutectic (5% ZrO sub 2, 95% ZnO) occurs at 1730 plus or minus 10 degrees. Orig. art. has: 7 figures, 1 table.
Card 1/2

BATRAKOV, O.T.

BATRAKOV, O.T., kand. tekhn. nauk

Using machinery fitted with pneumatic tires in tamping highway
embankments, Avt. dor. 21 no.1:13 Ja '58. (MIRA 11:1)
(Road construction)

BIRULYA, Aleksandr Konstantinovich; BATRAKOV, Oleg Trifonovich; MOGILEVICH, Valentin Mikhaylovich; IYEVLEVA, T.A., red.; NIKOLAYEVA, L.N., tekhn.red.

[Precast reinforced-concrete highway pavements] Sbornye zhelezobetonnye pokrytiia avtomobil'nykh dorog. Moskva, Nauchno-tekhn.isd-vo M-va avtomobil'nogo transp. i shosseinykh dorog RSFSR, 1960. 155 p. (MIRA 14:1)

(Pavements, Concrete)

BATRAKOV, O. T.

"Packing of Grounds and Coatings with the Aid of Pneumatic-Mounted Rollers in the Light of a Study of the Interaction between the Pneumatic Wheel and the Packed Layer."
Min. Higher Education USSR, Khar'kov Automobile Roads Institute, Khar'kov, 1955.
(Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis', No. 22, 1955, pp 93-105

BATRAKOV, O.T.

Evaluating viscous soil properties by pressing-in a stamp.
Trudy Khar. avt.-dor. inst. no.28:49-53 '62. (MIRA 17:2)

BATRAKOV, O.T., inzh.; STAVITSKIY, V.D., inzh.

Selecting the parameter of pneumatic tires for rollers. Stroi.
1 dor.mash. 9 no.10:6-7 0 '64. (MIRA 18:1)

BATRAKOV, O.T., kand.tekhn.nauk

Requirements for soil stabilization in road construction.

Avt.dor.i dor.stroi. no.1:36-41 '65.

(MIRA 18:11)

BATRAKOV, O.T., dotsent; STAVITSKIY, V.D., inzh.

Shortcomings of the standard method of soil stabilization.
Avt. dor. 28 no.5:26-27 My '65, (MIRA 18:11)

BERULYA, A.F.; BATRAKOV, O.T.

"Principles of soil science and soil mechanics," by V.F. Babkov
and A.V. Gerburg-Geibovich. Osn., fund. i mekh. gran. 8 no. 18
37-38 '66.

(MIRA 1961)

L 9205-66 EWT(1)

ACC NR: AR6000100

SOURCE CODE: UR/0058/65/000/008/A014/A014

SOURCE: Ref. zh. Fizika, Abs. 8A136

AUTHORS: Batrakov, R. I.; Belozeroва, V. P.; Tataurov, V. S.

ORG: none

TITLE: High resolution monochromator

CITED SOURCE: Tr. Komis. po spektroskopii AN SSSR, t. 2, vyp. 1, 1964, 656-664

TOPIC TAGS: monochromator, diffraction grating, optic resolution, light dispersion/

TRANSLATION: A high resolution monochromator, based on the Igel extraplanar installation, was designed and constructed for the 500--600 Å region. An aluminized diffraction grating with three meter of curvature and 1200 lines/mm was used, with a ruled surface 120 x 60 mm and a resolving power 144,000. The average dispersion of the instrument is 5 Å/mm. The spectrum is scanned by both translating and rotating the grating. The angle of incidence was varied thereby from 0° to 20°. Spectral symmetrical slits of the type NO-2443-57 were used. The source, monochromator, and receiver chambers each have their own autonomous vacuum systems. The radiation sources are low-voltage pulsed discharge and a hydrogen lamp, while the radiation receiver is a photomultiplier with fluorescent screen of sodium salicylate.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

L 15253-66 EWT(1)/EWT(m)/ETC(f)/EWG(m)/T DS
ACC NR: AP6001480

SOURCE CODE: UR/0368/65/003/006/0494/0497

AUTHOR: Guzhov, A.A.; Shabakov, N.P.; Batrakov, R.I.

ORG: none

TITLE: Use of creeping sparks in the vacuum ultraviolet spectral region

SOURCE: Zhurnal prikladnoy spektroskopii, v. 3, no. 6, 1965, 494-497

TOPIC TAGS: UV spectroscopy, UV light source, spark chamber, electrode

ABSTRACT: All newly proposed ^{21, 44, 55}light sources for the UV spectral region are based on some kind of electrical discharge. The authors noted the proposal by B. Vodar and N. Astoin (Nature, 166, 1029, 1950) concerning the possible use of vacuum creeping spark and constructed a source using such a spark which emits a very broad spectrum extending all the way into the region of overlap with X-rays below 200 Å. Extensive tests covering Al, Fe, Cu, and Be spectra described showed that it is possible to carry out reproducible photographic and photoelectric registration of spectra originating from various electrodes. The electrode material sputtered onto the electrode material carriers substantially affect the operation of the source; the spark begins to creep along the surface of the dielectric (or semiconductor), and its lines are added to the spectrum of the electrode material. The

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UDC: 537.53

L 15253-66

ACC NR: AP6001480

source is quite simple in design and can operate for several hours without electrodes replacements. It can be used for numerous spectroscopic investigations. Orig. art. has: 4 figures.

SUB CODE: 20 / SUBM DATE: 18Nov64 / ORIG REF: 004 / OTH REF: 003

Card 2/2 *AC*

UNKOVSKIY, B.V.; MOKHIR, I.A.; BATRAKOV, S.G.

Synthesis of geometric isomers of 1,2,5-trimethyl-4-hydroxy-4-piperidyl- and 1,2,5-trimethyl-4-hydroxy-4-piperidylcarbinols.
Zhur. ob. khim. 31 no. 11:3571-3577 N '61. (MIRA 14:11)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Methanol) (Isomers)

BERGEL'SON, L.D.; BATRAKOV, S.G.; GRIGORYAN, A.N.

Unsaturated acids and macrocyclic lactones. Report No.5: Stereospecific
synthesis of acetylenic glycols. Izv.AN SSSR Otd.khim.nauk no.9:1617-1626
S '62. (MIRA 15:10)

1. Institut khimii priordnykh soyedineniy AN SSSR.
(Glycols) (Antibiotics)

BERGEL'SON, L.D.; BATRAKOV, S.G.

Unsaturated acids and ~~macro~~cyclic lactones. Report No.10: Synthesis
of β -hydroxy- α,α' -trimethylpimelic lactone. Izv. AN SSSR. Ser.khim.
no.7:1259-1267, JI '63. (MIRA 16:9)

1. Institut khimii prirodnykh soedineniy AN SSSR.
(Pimelic acid) (Lactones)

BATRAKOV, S.G.; BERGEL'SON, L.D.

Unsaturated acids and macrocyclic lactones. Report No.14: Configuration of meso-2,4-dimethylpentane-1,3,5,-triol and of the asymmetric center C(3) in erythromycin and oleandomycin. Izv.AN SSSR.Ser.khim. no.9:1640-1648 S '64. (MIRA 17:10)

1. Institut khimii prirodnikh soyedineniy AN SSSR.

BATRAKOV, S.G.; BERGEL'SON, L.D.

Selective reduction of dicarboxylic acid monesters. Izv. AN SSSR
Ser. khim. no.2:369-370 '65. (MIRA 18:2)

1. Institut khimii prirodnikh soyedineniy AN SSSR.

BERGEL'SON, L.D.; BATRAKOV, S.G.

Unsaturated acids and macrocyclic lactones. Report No.16: Synthesis of compounds related to methymicine. Izv. AN SSSR. Ser. khim. no.5: 818-825 '65. (MIRA 18:5)

1. Institut khimii prirodnikh soyedineniy AN SSSR.

BATRAKOV, V.,

"On the use of resonant satellites for determining the constants of the earth's gravitational field"

report to be submitted for the 14th Congress Intl. Astronautics Federation,
Paris, France, 25 Sep-10Oct 1963

ANATOL'YEVSKIY, Pavel Aramovich; SHNEYEROV, Osip Markovich: Prinimala uchastiye: ANOKHINA, K.T.. PLOTNIKOV, N.A., prof., doktor tekhn. nauk, nauchnyy red.; BATRAKOV, V.A., red.

[Hydrogeological observations in boring and testing wells for water supply; methodological directions] Gidrogeologicheskie nabludeniia pri burenii i oprobovanii skvazhin dlia vodosnabzheniia; metodicheskie ukazaniia. Pod nauchn.red. N.A.Plotnikova. Moskva, M-vo stroit.RSFSR, Glavspetspromstroi, 1959. 147 p. (MIRA 12:12)

1. Gosudarstvennyy Proyektnyy institut "Spetsstroyproyekt" (for Anatol'yevskiy, Shneyerov).
(Water-supply engineering) (Boring)

BATRAKOV, Vladlen Aleksandrovich; BOGATYREV, Vladimir Il'ich; BAVAROV, S.F.,
red.; SHIROKOVA, M.M., tekhn.red.

[Electronic digital computers for solving information and logic
problems] Elektronnye tsifrovye mashiny dlia reshenia infor-
matsionno-logicheskikh zadach. Moskva, Gos.energ.isd-vo, 1961.
79 p. (Massovaya radiobiblioteka, no.404)

(MIRA 14:12)

(Electronic digital computers)

14719-85 EAT(d)/EAP(c)/EAA(d)/EAF(v)/T/EAF(k)/EAF(h)/EAF(l) Pf-4
AMZ045983 BOOK EXPLOITATION S/ 16

Arzhanov, Sergey Alekseyevich; Batrakov, Vladlen Aleksandrovich

Electronic digital computers and military supplies (Elektronnyye tsifrovyye
mashtaby i snabzheniye voyesk: Moscow, Voenizdat, 1981. 242 p. illus., biblio.
500 copies printed. Editor: Engineer Major I. A. Verlyagin; Technical editor:
Ye. K. Monovalova; Proofreader: R. V. Boronova.

TOPIC TAGS: automation, digital computer, electronic computer, recording system,
logistics, military material, supply depot

PURPOSE AND COVERAGE: See Table of Contents.

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AM4045983

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SUB CODE: DP, MS

SUBMITTED: 8Feb64

NR REF SOV: 016

OTHER: 010

Card2/2

BATRAKOV, V.G., kand. tekhn. nauk

Water repellant coatings used in construction. Stroi. mat.
10 no.1:36 Ja'64. (MIRA 17:5)

BATRAKOV V.G.
MOSEKVIN, V.M., prof.; ALEKSEYEV, S.N., kand. tekhn. nauk; BATRAKOV, V.G.,
inzh.

Effect of the added quantity of tripoli earth on the frost resistance
of concrete. Bet. i shel.-bet. no.2:60-62 P '58. (MIRA 11:2)

1. Onlen-korrespondent Akademii stroitel'stva i arkhitektury SSSR.
(Concrete--Cold weather conditions)
(Corrosion and anticorrosives)

ALEKSEYEV, S.N., kand.tekhn.nauk; BATRAKOV, V.G., inzh.

Carrying out freezing and thawing tests on concretes subjected
to actions of saline solutions. Trudy VIIZHB no.12:66-76 '59.

(MIRA 13:8)

(Frost resistant concrete--Testing)

SOV/97-59-1-5/18

AUTHORS: Moskvina, V.M., Member of ASIA SSSR, Doctor of Technical Sciences, Professor; Alekseyev, S.N., Candidate of Technical Sciences, and Batrakov, V.G., Engineer

TITLE: Silico-Organic Additive for Increasing Frost-Resistance of Concrete (Kremniyorganicheskaya dobavka dlya povysheniya morozostoykosti betona)

PERIODICAL: Beton i Zhelezobeton, 1959, Nr 1, pp.19-21 (USSR)

ABSTRACT: Frost-resistance of mortars and concretes can be considerably increased by the addition of a new hydrophobic compound GKZh-94. The optimal quantity of additive recommended to secure frost-resistance is 0.1% (by weight of binder). While this additive retards hardening in the initial stages, concrete and mortar have normal strengths after 28 days. Tests with GKZh-94 (discovered by Candidate of Technical Sciences M.N. Plungyanskaya) in the form of a 50% aqueous emulsion were carried out by the Laboratory for Protection of Concrete and Reinforcement from Corrosion, of the Institute of Concrete and Reinforced Concrete ASIA SSSR (Laboratoriya zashchity betona i armatury ot korrozii Instituta betona i zhelezobetona ASIA SSSR). GKZh-94 has the following properties: it does not

Card 1/4

SOV/97-69-1-5/18

. Silico-Organic Additive for Increasing Frost-Resistance of Concrete

encourage corrosion; it does not form harmful gaseous products; it easily emulsifies in water, and emulsion is permanent. Tests were carried out on test cubes, 70 x 70 x 70 mm in size, 3, 7 and 28 days after application of the solution mixed in the proportion of 1/3. The water absorption was tested by submersion in water for 24 hours of test cubes 40 x 40 x 160 mm. Previously the cubes were dried out to a constant weight. Frost resistance tests were carried out, by an accelerated method, by means of freezing and defreezing of test cubes in a 5% solution of natrium sulphate. Results of these tests are given in Table 1. The addition of small quantities of GKZh-94 (0.01 - 0.1% by weight of cement) has no effect on the normal consistency of cement. When the addition reaches 0.5% or more the density increases. The time of setting of cement increases with increased quantity of the additive. The addition of 0.1 - 0.01% by weight of cement slightly increased the strength of samples. The addition of 0.12 - 0.2% retards the growth of strength, but after 28 days the strength of concrete is slightly higher than the standard

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SOV/97-59-1-5/18

Silico-Organic Additive for Increasing Frost-Resistance of Concrete

samples. When 0.2% or more additive is used, the strength is lower proportionally to the quantity of additive, and after 28 days the strength does not reach the value of standard test cubes. 0.1% of additive GKZh-94 does not lower the water absorption of mortar, but with increased amount of additive the water absorption falls steeply. The optimal frost-resistance was found with additive of 0.07 - 0.12% by weight of cement, and this amount also adds to the strength of the test cubes. The optimal quantity of this compound, therefore, taking into account frost-resistance and strength, is 0.1% by weight of cement. Further tests were carried out using various types of concrete, cements and aggregates treated with GKZh-94. Table 2 gives data of the mineralogical composition of clinkers. A detailed description of various tests and testing apparatus used is given. Results of tests for frost-resistance of concrete made from cement based on tripoli are given in Table 3; and values given in Table 4 show that the soundness of concretes based on pozzuolana cement can be increased by the addition of GKZh-94. The percentage of additive

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Silico-Organic Additive for Increasing Frost-Resistance of Concrete

GKZh-94 and its effect on the strength of concrete after 3, 7, 28 and 90 days of hardening are given in Table 5. Test cubes were tested for breakage on apparatus IChMK-2. There are 1 figure and 5 tables.

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MOSKVIN, V.M., doktor tekhn. nauk, prof.; ALEKSEYEV, S.N., kand. tekhn. nauk;
BATRAKOV, V.G., inzh.

Effect of various cements on the strength of concretes and rein-
forcements. Trudy NIIZHB no.9:4-20 '59 (MIRA 13:3)
(Cement) (Reinforced concrete--Testing)

MOSEVIN, V.M., doktor tekhn. nauk. prof.; ALEKSEYEV, S.N., kand. tekhn. nauk.;
BATRAKOV, V.G., inzh.

Effect of some organic admixtures on the frost resistance of
concretes. Trudy NIIZHB no.9:70-82 '59 (MIRA 13:3)
(Frost resistant concrete)

BAIKAROV, V G.

PHASE I BOOK EXPLOITATION

SOV/4491

Akademiya stroitel'stva i arkhitektury SSSR. Institut betona i zhelezobetona

Korroziya zhelezobetona i metody zashchity (Corrosion of Reinforced Concrete and Methods of Protection Against It) Moscow, Gosstroyizdat, 1960. 131 p.
Errata slip inserted. (Series: Its: Trudy, vyp. 15) 5,000 copies printed.

Ed.: V.M. Moskvina, Corresponding Member, Academy of Building and Architecture USSR, Doctor of Technical Sciences, Professor; Ed. of Publishing House: M.N. Kuznetsova; Tech. Ed.: E.M. El'kina.

PURPOSE: This book is intended for scientific research workers and construction engineers specializing in reinforced-concrete structures.

COVERAGE: The collection of 9 articles deals with corrosion processes which occur in reinforced concrete and methods of combating them. Increasing the durability of reinforced concrete through the use of admixtures of organosilicon compounds or by using protective coatings with lacquers and enamels is analyzed. Ways of avoiding deformations in reinforced concrete caused by frost are discussed. No personalities are mentioned. References follow each article.

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✓ Corrosion of Reinforced Concrete (Cont.)

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Moskvin, V.M. [Doctor of Technical Sciences, Professor], and A.M. Podval'nyy [Engineer]. Methods for Investigation of the Corrosion Processes in Concrete by Means of Specimens Under Tension	3
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15 3200 2209, 1273

20491
8/097/60/000/009/002/008/XX
A053/A029

AUTHORS: Moskvin, V.M., Doctor of Technical Sciences, Professor; Alekseyev, S.N. Candidate of Technical Sciences; Batrakov, V.G., Engineer

TITLE: Effect of Certain Organic Admixtures on the Frost Resistance of Concrete

PERIODICAL: Beton i zhelezobeton, 1960, No. 9, pp. 389 - 393

TEXT: Kh.M. Leybovich and M.M. Kapkin, Candidates of Technical Sciences at NIItsement have demonstrated that by introducing the necessary quantity of silico-organic compounds a marked increase in frost resistance can be obtained (Ref. 1). This has been confirmed by the works of M.N. Plungyanskaya, Candidate of Technical Sciences, and V.M. Moskvin, Professor (Ref. 2). In previous works (Ref. 3) it had been established that the addition of ГКЖ-94 (GKZh-94) silicoorganic liquid a product of hydrolysis of the ethyl dichlorosilane amounting to 0.1% of the weight of cement increases the frost resistance of concrete 3 - 5 times. The article describes the results of investigations pertaining to the influence of other well-known admixtures, such as sodium abietate (vinsol), and distillation wash from sulfite alcohol. The experimental investigation took place in the Central Labora-

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S/097/60/000/009/002/008/XX
A053/A029

Effect of Certain Organic Admixtures on the Frost Resistance of Concrete

tory of Corrosion of the Institut betona i zhelezobetona (Institute of Concrete and Reinforced Concrete). The tests were made with concrete prisms 7 x 7 x 22 cm made from Portland cement of 400 brand and puzzuolanic cement of 400 brand. Sand and gravel (5 - 20 mm fractions) were employed as fillers. The article gives the chemical composition of the cements. The following admixtures were used: a 50% water emulsion of silicoorganic GKZh-94 liquid, nonsaponified abietic resin in powder form, sodium abetite in powder form (CHB - SNV), sulfite-alcohol dregs as liquid concentrate. The admixtures were added to the concrete in the following quantities: GKZh-94 0.1% (based on 100% emulsion), abietic resin 0.02%, sulfite-alcohol dregs 0.2% (based on the dry substance). After the samples had been produced and permitted to dry during 28 days, they were submerged in baths with aggressive solutions in which they were kept for 48 hours, after which they were alternately frozen at -20°C and defrosted at +25 - 35°C during 8 hours. The degree of destruction of the samples was evaluated by measuring the frequency of the transversal oscillation of the bending of the sample on the ИЧМК-2 (ICHMK-2) device and by weighing the sample; this permitted to calculate the dynamic module of elasticity of the concrete. The durability of the concrete was judged by the

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S/097/60/000/009/002/008/X.I.
A053/A029

Effect of Certain Organic Admixtures on the Frost Resistance of Concrete

number of cycles of freezing and defrosting a concrete sample could stand until suffering a decrease of 25% in the dynamic module of elasticity or a loss of 5% of the original weight. A number of graphs shows the influence which the above-cited organic admixtures have on concrete made from Portland cement and from puzzuolanic cement. Two comparative tables give the state of durability of the two kinds of concrete treated with different organic admixtures; the aspect of the respective samples having undergone the tests are shown on a photograph. The superiority of the silicoorganic compound GKZh-94 over the hitherto best-known admixtures is proved. The superior frost resistance obtained with GKZh-94 is mainly due to the development of fine-pore structure in the concrete, while the water-repellent effect is only temporary; in the event of lasting contact of concrete with water. The utilization of GKZh-94 is recommended particularly for hydrotechnical installations. There are 3 tables, 2 sets of graphs, 1 photograph and 3 Soviet references.

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BATRAKOV, V.G., insh.

Investigating the effect of silicon organic compounds on the
durability of concrete. Trudy NIIZHB no.15;44-57 '60.
(Concrete) (Silicon organic compounds) (MIRA 13:9)

S/600/61/000/022/001/002

D227/D304

AUTHOR: Batrakov, V.G., Engineer

TITLE: Effect of organosilicon compound $\Gamma K \chi$ -94 (GKZh-94) on the frost stability of normal hardening concretes

SOURCE: Akademiya stroitel'stva i arkhitektury SSSR. Institut betona i zhelezobetona, Trudy, no. 22, 1961, Zashchita stroitel'nykh konstruktsiy ot korrozii, 119-127

TEXT: The present work gives some results of investigations conducted at the Central Corrosion Laboratory *N/ZhBAS* and A USSR under Professor V.M. Moskvina, in which concrete mixtures were studied. The experiments were carried out by standard methods and consisted of freezing and thawing specimens immersed in aggressive solutions. The frost stability was determined by the number of freeze-thaw cycles which caused 25% reduction of the original modulus of elasticity or a 5% weight loss. The effect of ($\Gamma K \chi$ -94) GKZh-94 additions on the frost stability was studied on concretes based on quick setting Portland cement ex-Brotsenskiy works and

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Effect of organosilicon ...

S/600/61/000/022/001/002
D227/D304

expanding gypsum-alumina cement. The tests were conducted using artificially produced sea-water containing 34 g/l of salt. The results have shown that GKZh-94 increases the frost stability of both concretes by 3 to 10 times. In further experiments the effect of the same additive was studied on concretes with up to 25% tripolite, Exspasskiy and Vev'yenskiy works. The media were 5% Na_2SO_4 solution and synthetic sea-water. In this case also, 3-4 times higher frost stability was recorded. Another set of experiments was carried out using concrete specimens with variable contents of tripolite. The specimens were kept under normal setting conditions for 1 year and then subjected to alternating freezing and thawing, wetting with 5% Na_2SO_4 solution and drying. Once again it was proved that the stability of concretes based on Portland cements may be increased considerably by adding organosilicon. In order to compare the effect of GKZh-94 with commonly used surface active agents, additives such as alcoholic sulphite lye (I) and sodium abietate (II) were tried. The Bielgorod plant Portland cement was used in preparing specimens and the quantities of additives were : GKZh-94 0.1%, II 0.02% and I 0.2%. After

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Effect of organosilicon ...

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D227/D304

28 days of normal storage the specimens were subjected to "freeze-thaw" cycles in synthetic sea-water. The GKZh-94 treated specimens showed a 4-5 fold stability increase, while the others only a 2 fold increase. Examination of the specimens after 157 cycles confirmed the superiority of GKZh-94 containing concretes over standard specimens which showed signs of disintegration after only 67 cycles. Results obtained with the participation of Engineers O.A. Ptitsyn and I.V. Ovchinnikova, on the life of concrete in tidal zones of the Barentsov Sea confirmed the laboratory tests. The evaluation of stability was conducted by determining the variation of the dynamic modulus of elasticity in 10 x 10 x 40 cm. concrete prisms. Concretes with GKZh-94 withstood 480 cycles without any adverse effects while the others disintegrated after 350-380 cycles. The frost resistance of the silicon treated concretes may be due to the formation of fine, uniformly distributed pores produced by the liberation of gas formed in the reaction of GKZh-94 with Ca(OH)_2 , derived from the hydrolysis of cement components. Polyorganocalcium siloxane film which is probably formed, reacts chemically with the surface of pores and capillaries. In time the -Si-O-Ca-O-Si- bond strengthens and polymerization may

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Effect of organosilicon ...

S/600/61/000/022/001/002
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occur with considerable lengthening of the molecular bonds within the surface layer which increases the stability of concrete to temperature changes. Addition of GKZh-94 may, therefore, be recommended for concretes used in hydrotechnical structures, especially those exposed to fluctuations of water level and temperature changes. There are 5 figures, 6 tables and 1 Soviet-bloc reference. ✓

Card 4/4

34412

S/081/62/000/002/075/107
B150/B101

1573200
AUTHOR:

Batrakov, V. G.

TITLE:

The effect of an additive of the silicon-organic compound
ГКЖ-94(GKZh-94) on the resistance to frost of concretes
which set normally

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 2, 1962, 387, abstract
2K323 (Tr. N.-1 in-ta betona i zhelezobetona Akad. str -va i
arkhitekt. SSSR, no. 22, 1961, 119 - 127)

TEXT: Tests were carried out with freezing at -20°C and thawing at +25°C
to +30°C of concretes in vats with aggressive solutions and with samples
fully submerged. Before testing, the samples were saturated with solutions
for 48 hours. The criterion of frost-resistance was taken as the number
of cycles of freezing and thawing causing a 25% reduction of the dynamic
modulus of elasticity or 5% of the weight of the samples. Samples were
prepared from various cements. The additive ГЖЖ-94(GKZh-94) (products of
the hydrolysis of ethylchlorosilanes) formed 0.1% of the weight of the
cement. The introduction of GKZh-94 increases the resistance to frost of
Card 1/2

The effect of an additive of the...

S/081/62/000/002/075/107
B150/B101

the concrete in gypsum alumina cement and BTU(BTTs) 3 to 10 times. Cements with an increased content of tripolite (25%) showed an increase of 3 to 4 times in resistance to frost with the addition of GKZh-94. Comparison of the additive GKZh-94 and CCB(SSB) (0.2%) and sodium abietate (0.02%) showed that the introduction of the additive GKZh-94 increased frost resistance twice as much as with the additive CCB(SSB) or the sodium abietate. Experiments carried out on the tidal coast of the Barents Sea confirmed the great effectiveness of the additive GKZh-94. The mechanism of its action is two-fold: 1) hydrogen liberated by the hydrolysis of GKZh-94 imparts microporosity to the cement stone; 2) the formation of polyorganic calcium siloxanes on the surface of the pores probably contributes to an increase of deformability of the concrete. Results of the experiments revealed a striking advantage in favour of the GKZh-94 additive in comparison with other additives. [Abstracter's note: Complete translation]

Card 2/2

BATRAKOV, V.G., inzh.

Effect of the addition of GKZh-94 silicon organic compound on the frost resistance of normally hardened concretes. Trudy NIIZHB no.22:119-127 '61. (MIRA 14:10)

1. Nauchno-issledovatel'skiy institut betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR.
(Silicon organic compounds) (Frost resistant concrete)

MEDVEDEV, V.M., kand.tekhn.nauk; BATRAKOV, V.G., inzh.

Frost resistance of concrete for sectional reinforced concrete
shipbuilding. Sudostroenie 28 no.2:56-57 F '62. (MIRA 15:3)
(Concrete, Frost resistant) (Ships, Concrete)

MOSKVIN, V. M., doktor tekhn. nauk; BATRAKOV, V. G., kand. tekhn. nauk

Durability of hydraulic concrete with organosilicon additions.
Transpstroï 13 no. 11:51-53 N '63. (MIRA 17:5)

L 22907-65 EPF(c)/EWG(s)-2/EWP(j)/EWT(m) Pc-4/Pr-4/Pw-4 RM
ACCESSION NR: AP5001772 S/0097/64/000/002/0051/0056

AUTHORS: Moskvin, V. M. (Doctor of technical sciences, Professor); Batrakov, V. G. (Candidate of technical sciences)

TITLE: Durability of concrete with additions of silica-bound links

SOURCE: Beton i zhelezobeton, no. 2, 1964, 51-56

TOPIC TAGS: additive, concrete, silica, silicon compound, bonding material

ABSTRACT: The effect of introducing small amounts of silica-bound links into concrete mixes upon the change of concrete properties was investigated. The silica interaction mechanism is characterized in Fig. 1 on the Enclosure, where Me is a metal (Ca, Mg, Al, etc.) and R is a methyl, ethyl, hydrogen, hydroxyl, or some other group. The linkage has a hydrophobic effect upon pore walls and capillaries such that the concrete's frost susceptibility is reduced. The results of tests conducted in NIIZhB to determine the use of the material in rigorous conditions are presented. Participants in the tests were I. A. Zubkov and K. P. Grinevich of the Institut gosudarstvennogo komiteta po khimii (State Institute Committee on Chemistry). Two basic linkages were tested: polyhydrosiloxane and sodium silicate. Frost stability was measured with the use in 0.1% concentrations

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I. 22907-65.

ACCESSION NR: AP5001772

and were of the classifications GKZh-94, GKZh-94-M, and GKZh-10. Description of addition methods is as given in "Instruktsiyu po povysheniyu dolgovechnosti betona v konstruktsiyakh morskikh gidrotekhnicheskikh sooruzheniy, M., 1962." Plotted results include measures of weight and dynamic modulus of elasticity change for concrete with silica-bound additives and, for comparison purposes, without additives, or with other types of additives. The measurements are made against increasing time of exposure to harsh elements (water, salt water). The authors demonstrated and concluded that the frost resistance is greatly increased (for 0 to 15 cm standard slump test consistencies) by the addition of either of the two additive types; the increased resistance is due to the additive's effect upon the hydrophobic properties of pore walls and capillaries. Salt infiltration stability is greatly increased through the presence of the additive linkage. GKZh-94 does not appreciably increase the mix cost. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 01

SUB CODE: MT

NO REF SOV: 006

OTHER: 001

Card 2/3

L 22907-65

ACCESSION NR: AP5001772

ENCLOSURE: 01

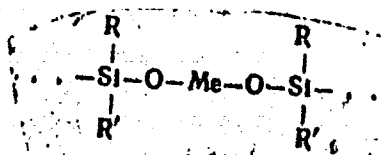


Fig. 1.

Cord 3/3

BATRACOV, V.G., kand. tekhn. nauk; FEDIN, Ye.I., inzh.

Service life of shipbuilding concretes exposed to pickling
solutions and brines. Sudostroenie 30 no.12:34-37 D '64.

(MIRA 18:6)

KIREYEV, P.M.; LIFSHITS, G.I.; DIK, M.G.; BATRAKOV, V.I.; SLAVUTSKIY, N.I.,
inzh.; FRID, N.Ya.; SUDOPLATOV, G.A.; FAL'KOVICH, Ya.D., starshiy
tekhnolog

Worthy welcome to the 22d Congress of the CPSU. Khol. tekhn. 38
no.4:5-13 J1-Ag '61. (MIRA 15:1)

1. Direktor Moskovskogo khladokombinata No.3 (for Kireyev).
2. Glavnyy inzh. Moskovskogo khladokombinata No.3 (for Lifshits).
3. Glavnyy inzh. Moskovskogo kholodil'nika No.9 (for Dik). 4. Glavnyy
inzh. Moskovskogo kholodil'nika No.10 (for Batrakov). 5. Glavnyy
inzh. Moskovskogo kholodil'nika No.12 (for Frid). 6. Direktor
Kiyevskogo kholodil'nika No.1 (for Sudoplatov).
(Refrigeration and refrigerating machinery)

101 AND 102 REPORT		PROCESS AND PROPERTIES INDEX		103 AND 104 CODES	
<p><i>Ca</i></p>		<p><i>A</i></p>			
<p>The irreversible electrode potential of copper. G. V. Akimov and V. P. Batrakov. <i>J. Phys. Chem.</i> (U. S. S. R.) 13, 1807-30(1939).—Exptl. data are given on the electrode potentials of Cu in 27 different electrolytes at concns. from 0.00001 to 5.0 N after immersion and contact lasting from 5 min. to 48 hrs. Formation of passive surface films, simple Cu ions and oxidation of the ions of the soln. by atm. O₂ cause increase of potential with time; rupture of soln. of surface films, formation of another type of electrode of the second class (R. S. C.), stepwise development of the R. S. C., formation of products of interaction of Cu with the electrolyte such as SO₂ or NO₂ ions from SO₂ and NO₂ ions, and transformation of simple into complex ions cause a decrease of the potential with time. Several factors may act simultaneously, especially in the case of acids and slightly hydrolyzed salts. In solns. of KMnO₄, the max. electrode potentials reached rose rapidly with increasing concn. from 0.287 N in 0.0001 N soln. to a max. at 0.0001 N in 0.01 N KMnO₄, and decreased to 0.828 N in a satd. soln. after 1 hr. For K₂Cr₂O₇ the max. was attained even after 5 min. In other cases the max. was only slowly reached and occurred at very low, intermediate or very high concns. The max. abs. values of the electrode potentials with respect to the H electrode, the corresponding time in min., the concn. and the potential attained after the same time in 1 N and in satd. or 5 N solns. are given.</p> <p>F. H. Rathmann</p>					
<p>ASB-51A METALLURGICAL LITERATURE CLASSIFICATION</p>					
<p>10000 10100 10200 10300 10400 10500 10600 10700 10800 10900 11000 11100 11200 11300 11400 11500 11600 11700 11800 11900 12000 12100 12200 12300 12400 12500 12600 12700 12800 12900 13000 13100 13200 13300 13400 13500 13600 13700 13800 13900 14000 14100 14200 14300 14400 14500 14600 14700 14800 14900 15000 15100 15200 15300 15400 15500 15600 15700 15800 15900 16000 16100 16200 16300 16400 16500 16600 16700 16800 16900 17000 17100 17200 17300 17400 17500 17600 17700 17800 17900 18000 18100 18200 18300 18400 18500 18600 18700 18800 18900 19000 19100 19200 19300 19400 19500 19600 19700 19800 19900 20000 20100 20200 20300 20400 20500 20600 20700 20800 20900 21000 21100 21200 21300 21400 21500 21600 21700 21800 21900 22000 22100 22200 22300 22400 22500 22600 22700 22800 22900 23000 23100 23200 23300 23400 23500 23600 23700 23800 23900 24000 24100 24200 24300 24400 24500 24600 24700 24800 24900 25000 25100 25200 25300 25400 25500 25600 25700 25800 25900 26000 26100 26200 26300 26400 26500 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R-1

PROCESSES AND PROPERTIES INDEX

Electrochemical behavior of stainless steels. II. Electrode potentials of stainless steels and their components in nitric acid. G. V. Abimov and V. P. Butskiy (Compt. rend. Acad. Sci. U.R.S.S., 1944, 28, 116-119; cf. A., 1945, I, 26).—The electrode potentials (E) of pure Fe, Cr, and Ni, passivated Fe, and of steels containing 18% Cr (II) and 18% Cr + 8% Ni (III) have been measured in HNO_3 at concns. 0.001N–10N. With increasing acid concn., the val. of E , decreases from 0.600V. to 0.501V. and rises slowly to ~10N., then rapidly: E_{Fe} shows a similar behaviour, with higher val. of E ; E_{Cr} and E_{Ni} rise continuously to ~1N., and more rapidly thereafter, E_{Fe} being the higher; E_{Cr} follows the E_{Fe} curve up to 0.01N., then drops sharply, rising again after 1N.; E_{Ni} lies above E_{Fe} and E_{Cr} ; (III) is passive at all concns. studied. The potentials are regarded as complex, of the film-pore type. L. J. J.

Lab. Physics of Metals, All-Union Inst. for Aviation Materials.

ASAC-51A METALLURGICAL LITERATURE CLASSIFICATION

SEARCHED	INDEXED	SERIALIZED	FILED
NO	NO	NO	NO

Electrochemical behavior of stainless steels. IV. Electrode potentials of stainless steels and their components in ferric chloride solutions. V. P. Istrakov and G. V. Akimov (Compt. rend. Acad. Sci. U.R.S.S., 1948, 88, 191-193). — With increasing $[FeCl_3]$ up to 7.5N, the electrode potential curve of Cr increases whilst that of Ni increases after a preliminary slight decrease to a min. in 0.001N $FeCl_3$. The potential for Fe decreases rapidly but rises from 0.01N $FeCl_3$ onwards accompanied by ever-increasing corrosion as a result of increase in the potential of the cathode areas which is due to a rise in the oxidation-reduction potential of the solution and to strong cathodic polarization. In the concn. range 0.0001–0.01N $FeCl_3$, Fe-Cr is reveals an unstable potential val., the curve dropping sharply. This steel corrodes, especially at high $[FeCl_3]$. Thus the activating action of H^+ and Cl^- prevails over the action connected with the increased oxidizing ability of the solution. Up to 0.001N $FeCl_3$ the protective film on Fe-Cr-Ni is-a improves but activation prevails at higher $[FeCl_3]$, corrosion taking the form of localized pitting. G. R. H.

Lab. Physics of Metals, All-Union Inst. for Aviation Materials.

AKINOV, G.V.; BATRAKOV, V.P., kandidat tekhnicheskikh nauk.

Resolutions of the Conference on the Control of Metal Corrosion
in Sea Water. Trudy kom. po bor'. s korr.met. no.1:224-227 '51.
(MLRA 10:8)

1. Chlen-korrespondent AN SSSR (for Akinov).
(Metals--Corrosion)
(Hulls (Naval architecture)--Corrosion)

BATRAKOV, V.P.

USSR/Metals - Corrosion

Sep 51

"Conference on Protection of Metals Against Corrosion
in Sea Water," V. P. Batrakov, Cand Tech Sci

"Vest Ak Nauk SSSR" No 9, pp 84-86

Briefly describes reports delivered at conference arranged in Baku by Acad Sci USSR in cooperation with Min of Petroleum Ind. Purpose of conference was outlined by G. V. Akimov, Chm, Commission on Protection of Metals Against Corrosion, as follows: development of dependable methods for anticorrosive protection of sea oil wells, sea oil pipes, pumps and auxiliary equipment, measures against corrosion of sea vessels and marine hydraulic structures.

219T49

BATRAKOV, V.P.; KURTEPOV, M.M.; TOMASHOV, N.D.

Georgii Vladimirovich Akimov. Zhur. Fiz. Khim. 27, 313-16 '53. (MLRA 6:5)
(CA 47 no.18:9071 '53)

PHENOMENON, V.F.

The phenomenon of the hyper-passivation of steel in
oxidizing atmosphere
January 1955. Acet. 100% 100% 100% 100%
40 100% 100% 100% 100%
the same, and

100% 100% 100% 100%
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the same, and. This phenomenon is called hyper-
passivation of steel and is attributed to a breaking of the metal
film, the metal surface interface caused by a change in the
character of the oxidation.

J. R. Belman

of

[Handwritten signature]
Translation of Title: Corrosion of Metallic Materials in Aggressive
Materials. Translated from Russian.

[Handwritten signature]

BATRAKOV, V. P.

USSR/Chemistry - Metallurgy

Card 1/1 Pub. 22 - 26/47

Authors : Batrakov, V. P.

Title : Mechanism of steel repassivation in oxidizing media

Periodical : Dok. AN SSSR 99/1, 97-100, Nov 1, 1954

Abstract : Experiments showed the phenomenon of repassivation of steel in oxidizing media is closely connected with the destruction of the protective films as result of the high oxidizing-reduction potential and change in anode processes occurring in steel during high potential and high anode current density. It was established that repassivation is applicable not only to steel but also to many pure metals, e. g., Cr which may dissolve in acid oxidizers at specific pH values, pH and temperatures. The increase in the rate of corrosion in low-alloyed steel and many other metals and its relation to anodic oxidation is explained. Eight USSR references (1881-1954). Graphs.

Institution : ...

Presented by: Academician S. I. Vol'fkovich, May 20, 1954

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 22 - 34/56

Authors : Batrakov, V. P.

Title : Auto-passivation of metals in oxidizing media

Periodical : Dok. AN SSSR 99/5, 797-800, Dec 11, 1954

Abstract : An electrochemical treatise, offering a broader explanation of the mechanism of auto-passivation and corrosion of metals in oxidizing media, is presented. One of the basic conditions leading to the origination of the passive state was found to be the achievement of such anode potentials at which processes resulting in passivation become possible. The cathode potentials should therefore exceed these critical values of the anode potential. The physiochemical value of the critical anode current and cathode current densities, in the auto-passivation of metals, is graphically explained. The presence of primary oxide films, sometimes connected with the simple chemical reaction of oxidants and their effect on auto-passivation is discussed. Six USSR references (1944-1953). Graphs.

Institution:

Presented by: Academician S.I. Vol'fkovich, July 19, 1954

1381 BATRAKOV, V.P.

AKIMOV, G.V.; BATRAKOV, V.P.

Mikhail Vasil'evich Lomonosov and the science of corrosion.

Trudy Kom. po bor'. s korr. met. no.2:5-10 '56.

(MIRA 10:2)

(Lomonosov, Mikhail Vasil'evich, 1711-1765)
(Corrosion and anticorrosives)

BATRAKOV, V. P.

The phenomenon of overpassivation of steel in oxidizing media V. P. Batrakov and

At 60% HNO_3 steel is in a passive state. Anodic polarization has little effect on the corrosion rate. Cathodic polarization destroys the passive state and the corrosion rate increases 30-50 times. For 90% HNO_3 penetration induces a rapid increase of the corrosion rate. The rate of destruction is especially high for high anodic current and cathodic polarization has a marked effect on the corrosion rate. The basic mechanism of the corrosion of steel in 90% HNO_3 is discussed.

PS
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Dist. 452-

the anodic curves the limiting current is apparent. There is a potential shift of 0.15 V.

B. a.
In soln $C_{\text{ox}} > \text{or} < C_{\text{red}}$ depends on the nature of the metal, nature

as the case (d). In accordance with this, since the main types of
polarization in oxidizing soln were established. Corrosion- *H₂*

USSR/Electrochemistry

B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26319

Author : V.P. Batrakov, I.A. Ponizovskaya

Inst : Academy of Sciences of USSR

Title : Electronographic Study of Nature of Passive Films

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 7, 830-833

Abstract : The structure of passive films was studied. These films are forming on the surface (S) of St. 10, St. 45, U8, 30HGS, EI457, EI268, EI401 and 1H18N9T steels and industrial Al at the treatment in $\text{Na}_2\text{Cr}_2\text{O}_7$ and $\text{K}_2\text{Cr}_2\text{O}_7$, as well as in HNO_3 of medium (45 to 60%) and high (75%) concentrations. The electronograms (E) of carbon steel specimens, sandblasted and treated in HNO_3 of medium concentration, are similar to E-s obtained for the specimens before their treatment (α -Fe and traces of γ - Fe_2O_3). This indicates an adsorption mechanism of the passivation. In case of high HNO_3 concentrations, and judging by E-s, an amorphous film possessing no protection properties originates on the surface. Specimens cleansed previously by 10% HCl were covered with a protection film of γ - Fe_2O_3 and γ - $\text{Fe}_2\text{O}_3 \cdot \text{H}_2\text{O}$ at

Card : 1/2

USSR/Electrochemistry

B-12

Abs Jour : Ref Zhur - Khimiya, No 8, 1957, 26319

the passivation with 60% HNO_3 , which is explained by a more active interaction between the surface and the oxidiser. The preliminary cleansing with HCl does not produce any activating result at the passivation of steels in $\text{Na}_2\text{Cr}_2\text{O}_7$. An oxide phase of the spinel type and a hydroxide phase with a rhombic lattice are observed on the surface of alloy steels treated in HNO_3 solutions of various concentrations. The study of the surface³ of stainless steels treated with 3% of $\text{K}_2\text{Cr}_2\text{O}_7$ permitted to determine a phase-adsorption mechanism of passivation under given conditions. Contrarily to steels, the passivation of Al in HNO_3 solutions of high concentration is caused by the formation of a protective amorphous film.

Card : 2/2

Bat'ra Key, V. P.

and steel correction diagrams to ordering media

1

DATA: 1971, V. 10

vs. 1971, V. 10, is ledovatel'skiy (ice) i. 1971, V. 10, is ledovatel'skiy (ice) i. 1971, V. 10, is ledovatel'skiy (ice) i.

SOV/137-58-8-17374

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 169 (USSR)

AUTHOR: Batrakov, V.P.

TITLE: Problems of the Theory of Corrosion and the Passivity of Metals in Oxidizers (Voprosy teorii korrozii i passivnosti metallov v okislitelyakh)

PERIODICAL: V sb.: Korroziya i zashchita metal'ov. Moscow, Oborongiz, 1957, pp 5-65

ABSTRACT: Electrode processes were studied in St-10 steel and Pt in highly concentrated oxidizers (O). It is proposed to differentiate two cases, namely, when protective films impeding the processes form on the surface of the metal and when they do not form. The value for the critical concentration of O or the value for the critical potential can serve as a criterion of the metal's pertinence to the one or the other case. In the presence of films, both the anodic and the cathodic processes are sharply retarded even at low cd. Parallel processes can take place with either the anodic or the cathodic polarization in O. In dilute O the O act as depolarizers, whereas in concentrated solutions O becomes an effective polarizer. For the formation of

Card 1/2

SOV/137-58-9-19595

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 210 (USSR)

AUTHORS: Batrakov, V.P., Ponizovskaya, I.A.

TITLE: ~~Electron-diffraction Study of the Nature of Passive Films (Elektronograficheskoye issledovaniye prirody passivnykh plenok)~~

PERIODICAL: V sb.: Korroziya i zashchita metallov. Moscow, Oborongiz, 1957, pp 66-73

ABSTRACT: The passivity of steel of the following grades: 10, 45, U8, 30KhGSA, 12Kh5MA, EI457, EI268, EI401, 1Kh18N9T, and of technical Al in solutions of HNO_3 , $\text{Na}_2\text{Cr}_2\text{O}_7$, and $\text{K}_2\text{Cr}_2\text{O}_7$ of various concentrations was investigated. By means of the electron-diffraction method the structure of the surface layers, which form on these metals upon treatment by the solutions mentioned, was determined under various conditions. It is established that on carbon and low-alloy steel the structure of the surface layers depends on their composition, the oxidizer, the preliminary treatment of the steel, and the system of passivation. The passivation of carbon steel in HNO_3 solutions of medium concentrations after pickling is ensured by the film (F).

Card 1/2

SOV/137-58-9-19595

Electron-diffraction Study of the Nature of Passive Films

In $\text{Na}_2\text{Cr}_2\text{O}_7$ solution after pickling, the initial stage of passivation is determined by an adsorptive mechanism, and with the passing of time a protective amorphous film forms. The passivation of medium-alloy and stainless steel is established by the formation of a phase-adsorptive F. Amorphous F possessing no protective properties form on carbon and low-alloy steel in concentrated solutions of HNO_3 . With an increase in the contents of alloying elements the amorphous layer decreases and the corrosion resistance increases. The passivation of Al in concentrated HNO_3 is accomplished by the formation of a protective amorphous F. With a decrease in the concentration of HNO_3 the corrosion increases, probably owing to the dissolution of the amorphous F and also to the dissolution of Al through the pores of the film.

V.G.

1. Thin films--Electron diffraction analysis
2. Steel--Processing
3. Steel
- Pickling
4. Nitric acid--Effectiveness

Card 2/2

BATRAKOV, V.P.

Electrochemical methods of metal protection in strong oxidizing
agents. Dokl. AN SSSR 117 no.2:252-254 N '57. (MIRA 11:3)

1. Predstavleno akademikom S.I. Vol'fkovichem.
(Electrolytic corrosion)

LEVIN, I.A., kand.tekhn.nauk, red.; BATRAKOV, V.P., kand.tekhn.nauk, red.;
NIKIFOROVA, V.M., kand.tekhn.nauk, starshiy nauchnyy sotrudnik, red.;
TURKOVSKAYA, A.V., kand.tekhn.nauk, red.; LESNICHENKO, I.I., inzh.,
red.isd-va; EL'KIND, V.D., tekhn.red.

[Intergranular corrosion and stress corrosion of metals] Mez-
kristallitnaya korroziya i korroziya metallov v napriazhennom
sostoyanii. Pod obshchei red. I.A.Levina. Moskva, Gos.nauchno-
tekhn.isd-vo mashinostroit.lit-ry, 1960. 358 p. (MIRA 13:6)

1. Vsesoyuznyy sovet nauchno-tekhnicheskikh obshchestv.
(Corrosion and anticorrosives)
(Metal crystals--Corrosion)

BATRAKOV, V.P., kand. tekhn. nauk, red.; KUNYAVSKAYA, T.M., red.;
ROZHIN, V.P., tekhn. red.

[Corrosion and the protection of metals] Korrozia i zashchita
metallov. Moskva, Oborongiz, 1962. 193 p. (MIRA 15:6)
(Corrosion and anticorrosives)

BATRAKOV, V.P., kand. tekhn. nauk, red.; KUNYAVSKAYA, T.M., red.;
~~ROZHIN, V.P., tekhn. red.~~

[Corrosion and the protection of metals]Korroziia i zashchita
metallov; sbornik statei. Moskva, Oborongiz, 1962. 193 p.
(MIRA 16:1)
(Corrosion and anticorrosives)

BATRAKOV, V.P.

"New Concepts Regarding the Theory of Structural and Localized
Corrosion of Metals and Alloys."

Moscow, U.S.S.R.

Report presented at the 14th meeting CITCE, Intl. Comm. of Electrochemical
Thermodynamics and Kinetics, Moscow, 19-25 Aug 63.

L 42922-66 EWT(m)/ENP(f)/ETI IJP(c) ID/IT
ACC NR: AP6029056

SOURCE CODE: UR/0413/66/000/014/0082/0082

INVENTOR: Averchenko, P. A.; Alekseyenko, M. F.; Babakov, A. A.; Babitskaya, A. N.;
Batrakov, V. P.; Bondarenko, A. L.; Gabuyev, G. Kh.; Yel'tsov, K. S.; Kulygin, G. V.;
Loia, V. N.; Orekhov, G. N.; Pridantsev, M. V.; Sklyarov, P. I.; Smolyakov, V. F.;
Soroko, L. N.; Solov'yev, L. L.; Frantsov, V. P.; Shamil', Yu. P.; Moshkevich, Ye. I.;
Natanov, B. S.

ORG: none

TITLE: Stainless steel. Class 40, No. 183947.

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 82

TOPIC TAGS: stainless steel, chromium titanium steel, molybdenum containing steel,
nitrogen containing steel, titanium containing steel

ABSTRACT: This Author Certificate introduces a stainless steel containing
chromium, molybdenum, and nitrogen. In order to improve weldability, the steel has
the following composition: 0.08% C, up to 0.8% Mn, up to 0.8% Si, 15-18% Cr,
0.2-0.6% Mo, 0.04-0.15 N, 0.4-1.2% Ti, up to 0.035 S, and up to 0.030 P. [WW]

SUB CODE: 11/ SUBM DATE: 30Jan65/ARA press. scis

Card 1/1 *ldh*

UDC: 669.14.018.8: 669.15'26-194

ACC NR: AP6035751

SOURCE CODE: UR/0413/66/000/019/0121/0121

INVENTOR: Batrakov, V. P. Azhogin, F. F.; Pribylova, L. I.; Kalugina, Z. V.;
Bekhtina, Z. P.

ORG: none

TITLE: Phosphatizing of cadmium-plated and zinc-plated steel surfaces. Class 48,
No. 186828

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 19, 1966, 121

TOPIC TAGS: phosphatizing, steel, ~~phosphatizing~~ cadmium ^{plating}, ~~zinc plating, steel phosphating, metal plating~~

ABSTRACT: This Author Certificate introduces a method of phosphatizing cadmium-plated or zinc-plated steel surfaces by treatment in a solution containing zinc monophosphate, magnesium nitrate and zinc oxalate. To obtain fine-grained phosphate films on parts with a complex configuration and a varying degree of surface finish, the composition of the solution is set as follows (in g/l): 10—15 zinc monophosphate, 50—70 magnesium nitrate, 10—15 ammonium monophosphate, 1.7—2.0 ferric nitrate, 1.7—2.0 oxalic acid, 4 ml/l "Progress" detergent and zinc oxalate, the latter up to saturation point. The process is carried out at 70—85°.

SUB CODE: 13/ SUBM DATE: 27May64/

Cord 1/1

UDC: 621.794.62:669.14

SHILOV, I.A.; BATRAKOV, V.S., otvetstvennyy redaktor; LYUBCHANSKAYA, N.I.,
redaktor ~~ispolnitel'stva~~; GOR'KOVAIA, Z.P., tekhnicheskii redaktor

[Method of calculating production costs on collective cotton farms]
Metodika ischisleniia sebestoimosti produktsii khlopko-seiushchikh
kolkhozov. Tashkent, Izd-vo Akademii nauk UzSSR, 1955. 29 p.
(Cotton growing) (MLRA 9:10)

BATRAKOV, V. S.

BATRAKOV, V.S.

Division of labor between nomadic and settled regions. Trudy
SAGU no.75:113-138 '55. (MLRA 10:5)
(Nomads)